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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/755,904	01/13/2004	Bradley L. Beach	2002-0794.02	1580

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LEXMARK INTERNATIONAL, INC.  
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EXAMINER

ZIMMER, MARC S

ART UNIT	PAPER NUMBER
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1712

MAIL DATE	DELIVERY MODE
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06/19/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/755,904	<b>Applicant(s)</b> BEACH ET AL.	
	<b>Examiner</b> Marc S. Zimmer	<b>Art Unit</b> 1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 May 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 3-6,8-15,18-20 and 22-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15 and 29-31 is/are allowed.
- 6) ☒ Claim(s) 3-6,8-14,18-20 and 22-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 15, 2007 has been entered.

In Applicant's December 11, 2006 correspondence (prior to their request for continued examination), they had amended claims 8 and 22 to insert a requirement of the elastomer composition from which the claimed roll was being prepared that it have between 9 and 40% of the graft polymer curative component. Applicant contended that this new limitation rendered the claims allowable insofar as the maximum amount of a polysiloxane internal release agent advocated by *Robertson* in column 7, lines 1-4 was 5 wt.%. The Examiner pointed out, however, that elsewhere in that disclosure, it had been contemplated that up to 8% of the copolymer could be added. It was the Examiner's position that this teaching rendered obvious the lower limit of Applicant's newly claimed range in light of several considerations.

Applicant has now further amended claims 8 and 22 by stipulating that the rolls are derived from compositions that provide a Shore A hardness of less than 50 when measured by a widely accepted technique. It is Applicant's position that a lowering of the Shore A hardness from that observed in a similarly-constituted composition upon adding the graft polymer curative is an unexpected outcome of that addition and, therefore, the rejection under 35 U.S.C. 103 is overcome.

The problem with Applicant's statements is that it is impossible to ascertain from their examples whether the attendant lowering in Shore A hardness is due to the addition of the graft polymer curative or perhaps some other factor. It would appear that the examples adhering to the compositional requirements of Applicant's claims are examples 5, 6, and 7 as the other examples do not seem to include a graft copolymer additive. This belief is based on Applicant's own characterization of various polymer curatives on page 8 of their Specification. Only FM-DA11 and FM-DA21 are clearly identified as graft polymers therein. It is acknowledged that the makeup of these polymer mixtures differ from that in example 1 in that they contain a graft polymer curative whereas the mixture of claim 1 does not. However, this is not the only difference. The other crosslinking agent, polyether triol, is also added in smaller amounts (in two cases by nearly half) to compositions of examples 5, 6, and 7. Hence, it cannot be ascertained whether the lowering of the Shore A hardness is due to the addition of the graft polymer curative or the reduction in the amount of the triol curative.

Shore A hardness is a reflection of the crosslinking density of the system when cured. That is to say, the more crosslinks that are created in the polymer material, the

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smaller its total number of modes of motion and, hence, the harder the material. Without knowing the exact structures of the polyether triol and the graft polymer additive, it is impossible to know whether a concomitant lowering in the amount of triol and increase in the amount of graft polymer (from zero parts) results in a net increase or decrease in the total amount of functional groups available for crosslinking nor can it be known what is the resulting change in the molecular weight between crosslinks, another factor influencing polymer hardness. The sum of these considerations is that the Applicant's results paint, at best, a murky picture of the role of the graft polymer in lowering the Shore A hardness. Therefore, the Examiner cannot agree that they have shown an unexpected result.

On the other hand, it also cannot be verified that the addition of 8 parts by weight of the silicone graft copolymer taught by *Robertson* to the polyurethane composition taught by *Beach et al.*, and more particularly, the favored embodiments of that reference described in Examples 1-3, would inherently provide a roller with a Shore A hardness in compliance with the requirements of the claims. However, the Examiner still believes that the claims are unpatentable for the reason given *infra*.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-6, 8-14, 18-20, and 22-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beach et al., U.S. Patent # 5,874,172 in view of Robertson, U.S. patent # 4,504,313 and Chiang et al., U.S. Patent # 6,352,771.

Beach and Robertson are relevant for the reasons already of record. However, neither of these references mentions making a roller with the stated Shore A hardness. Chiang, conversely, teaches a urethane-based developer roller with a Shore A hardness of between 40 and 50. According to column 1, lines 65, it is desirable to produce rollers having a hardness in this range (as opposed to within the range of 53-60 usually described- see column 1, lines 37-39) because they are less likely to promote melting of the toner and, hence, ghosting is avoided. In light of the teachings of Chiang, one of ordinary skill would be motivated to adjust the quantities of each of the components to provide a roller that exhibits, at the same time, good release from a mold and also sufficiently low hardness such that the toner is not being melted during operation of the electrophotographic apparatus.

***Allowable Subject Matter***

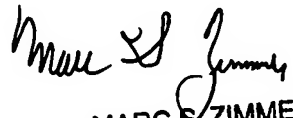
Claims 15, 29, 30, and 31 are allowable. Claims 30 and 31 recite an analogous roll and method making the same wherein the graft polymer is one comprising siloxane, acrylic, or polyester side chains.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc S. Zimmer whose telephone number is 571-272-1096. The examiner can normally be reached on Monday-Friday 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

June 14, 2007

  
MARC S. ZIMMER  
PRIMARY EXAMINER